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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.       |
|---|-------------|----------------------|---------------------------------|------------------------|
| 10/733,452  | 12/12/2003  | Takahiro Yajima      | 03500.015069.1                  | 1428                   |
| 5514 7590 06/27/2007<br>FITZPATRICK CELLA HARPER & SCINTO<br>30 ROCKEFELLER PLAZA<br>NEW YORK, NY 10112 |             |                      | EXAMINER<br>PADGETT, MARIANNE L |                        |
|   |             |                      | ART UNIT<br>1762                | PAPER NUMBER           |
|   |             |                      | MAIL DATE<br>06/27/2007         | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/733,452             | YAJIMA ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Marianne L. Padgett    | 1762                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/769328.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/12/03</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. The drawings are objected to because: (1) figure 8 needs to be labeled as prior art or as conventional, which would be consistent with the statement on page 15, line 5 of the specification; (2) all reference members need to be defined in the specification, where for example, figure 1 described on pages 11-14 does not appear to defined reference #'s 112 or 115. Further proofreading is recommended.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 contains non-idiomatic phrasing, especially with respect to the probable intent. Particularly see "power-applying electrode", which while not conventional phrasing, would literally mean that the electrode is supplying power to something unspecified, but one of ordinary skill in the art knows that power is generally applied to the electrode, making the need on certain. Would intended meaning correspond to --powered electrode--? See analogous phrasing problem in claim 8.

The phrase "... electrode with an undulation on its surface..." (claims 7, lines 11-12) would appear to indicate that the "undulation" (a noun) is a separate entity or thing that is placed on top of the electrode, however in light of the figures in the specification, with their illustration of a contoured electrode surface conforming to the shape of a substrate, this appears to be a non-idiomatic way of stating --...electrode with an undulating surface...--.

Use of pronouns or possessive pronouns, such as "its", is generally considered to be undesirable in patent claims, as they are less precise than exactly stating a limitation & can cause uncertainty. In claim 7, the examiner assumes "a substrate in the course of its transportation" means -- the substrate while the substrate is transported --, which is consistent with & ties in with a limitation on line 7. However, in claim 8, 3 lines from the end "its surface", is less than clear, as there are potentially lots of surfaces present that could be being referred to.

In claim 8, in the "employing..." step, as written it is uncertain when the electric shaping takes place with respect to the limitations recited in the preceding part of the claim. For the action to be meaningful, the examiner assumes that it should be performed before the film forming step, possibly as part of the preparing step, but no timing is necessitated by the claim language. Also, as phrase, "which are bundled up right..." is ambiguous, since it might refer to just the "... members", or it might be intended to also include "... sheets". From review of example 3, page 20 & example 4, page 22, it appears likely that both were intended to be bundled, but the claim language needs to be clarified, since the claims as written do not necessitate bundling of the sheet option. It is noted that in the third to last line, more appropriate & idiomatic phrasing would be "...substrate, so as to...".

3. The disclosure is objected to because of the following informalities: the specification meets proofreading or non-idiomatic English phrasing, inclusive of language such as noted in the claims (see above discussion).

Appropriate correction is required.

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 7 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Takai et al. (5,972,435).

Takai et al. (435) is forming a plasma polymerized film on a continuously moving/transported substrate, which has a curved surfaces while it is being coated, and which is taught to be a tape having a ferromagnetic metal thin film on its surface on which the plasma polymerized film is deposited. The rotary drum (25) over which the substrate is transported is the grounded electrode, hence the substrate with its metal thin film surface effectively serves as the grounded electrode opposite to the plasma electrode (9), which is shaped concentrically with the rotary drum, where the curved surfaces of this plasma electrode is considered to read on the probable meaning of having "a power-applying electrode with an undulation on its surface...". In Takai et al., see the abstract; figure 1; col. 2, lines 28-50; col. 3, line 45-col. 4, line 40, especially lines 14-27.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh (5,879,741), in view of Fujioka et al. (5,589,007), or vice versa.

Itoh teaches vapor phase thin film plasma coating on flexible & filmy substrates, where the substrate is passed continuously between two parallel electrodes conformally curved, such that the stress of the curved substrate cancels out the stress of the film being formed, thus preventing warpage of the substrate having a thin film formed thereon. These curved surfaces are considered to read on applicants' electrode shape the configuration. Itoh teaches their process for all types of thin films & that the material of the substrate is not limited as long as the material is capable of providing the curvature required, however they only substrate actually exemplified is polyethylene terephthalate (abstract; figure is 3-4; col. 2, lines 14-55, especially 23-37; col. 3, lines 37-48; col. 4, lines 6-8). Itoh differs from claim 7 in that the substrate does not necessarily act as electrode, as it is never explicitly disclosed as metallic, and in that the electrode associated with the substrate is the driven electrode, where the opposed electrode is grounded.

Fujioka et al. (741) teach coating belt-like substrates, where the substrates may be conducted, such as stainless steel, and may be employed in a series of coating process inclusive of plasma coating, where the conductive substrates are electrically grounded, thus acting as the grounded electrode & are opposed to the discharge electrode, which may be powered by a high-frequency power source. In Fujioka et al., see the abstract; figures 4, 6-7; col. 1, lines 55-64; col. 19, lines 35-38; col. 20, lines 66-col. 21 line 11; col. 22, lines 1-9 & 17-20; & col. 28, lines 15-22, additionally noting the teaching on col. 27, lines 65-col. 28, line 14 the teaching that the belt substrate used is preferably of material that causes less deformation or strain at temperatures required, inclusive of thin sheets of stainless steel, etc. Fujioka et al. differs from the present claims by not requiring an electrode surface have been "an undulation" or curvature to match a curvature of the substrate.

It would've been obvious to one of ordinary skill in the art to either employ coating processes as described in Fujioka et al. using the metal/conductive substrate as the grounded electrode in the process of Itoh, or alternately to employ the curved shape of the parallel plate electrodes of Itoh in Fujioka et al., in order to derive the benefits of reducing stress caused by coating in the combined process, especially considering that Fujioka et al. recognizes that deformation caused by stress is a problem to be avoided, while Itoh provides a means of doing so, above and beyond simply using a substrate that is less susceptible, and thus can further reduce strain caused deformation.

7. Claim 7 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 6-8, 13-16, 18-20, 23-26, 31-33, 36-39, 41-44, 49-52, 54-59, 61-64, 69-77, 80-83, 85, 88-91 & 93 of U.S. Patent No. 6,350,498 B1 (Moriyama et al.), in view of Itoh (5,879,741) & Fujioka et al. (5,589,007), as discussed above. The process claims of the patent differ from the present claims by never requiring that the belt substrate act as electrode, however all the patent claims require transporting a belt substrate, such that it forms part of the discharge space where the substrate is forced to have a curved shape, however acting as electrode as in either Itoh or Fujioka et al, the substrate

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is clearly part of the discharge space & the curved configuration as illustrated by Itoh is consistent with patent claims requirement of an inflection point in the orientation claimed, hence it would be obvious to one of ordinary skill in the art to employ the generic belt substrate of the patent claims as a substrate for reasons as taught by the combination of Itoh & Fujioka et al. due to the taught benefits derived from such a function plus configuration.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being obvious over 6,350,498 B1 (Moriyama et al.), in view of Itoh (5,879,741) & Fujioka et al. (5,589,007), as discussed above.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

9. The patent to Lee (5,009,920) is of interest to claim 8 as it teaches employing shaped electrodes used for vapor deposition processes that are precisely shaped to the configuration of the substrate, however it differs from the claim in that the pre-shaped materials of the electrodes are not made of either a plurality of sheets or a plurality of columnar members which are bundled up right, nor does the



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substrate act as electrode. Nor does Lee disclose using the substrate to form the conformal shape of the electrodes.

The Japanese patent Niso et al. (2-217399), cited by applicants is noted to employ a plurality of segments that would appear to be collar members that could be called bundled together, however they are used in the anode as a grounded electrode, and are pre-shaped.

Mallon (5,628,869), is also employed shaped electrodes, however the shape of the electrode is anticipated according to what they expect profile of the preceding coating will be.

Murakami et al. (6,503,579 B1) employs a composite electrode, which may be made up of sheets that are bundled together, and may be expanded or caused to fit the interior of a container that is to be coated on its exterior, that removed after coating, but the container is a dielectric material with the counter electrode exterior to it, so while the electrode is pressed against the substrate, that substrate is never used as electrode.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roth (5,938,854), in view of Yializis et al. (6,441,553 B1).

Roth discloses a substrate acting as a grounded electrode, which is conformal with the power to electrode, which may be a composite material made up of layers, thus related to sheets, but is only employed for cleaning, not for plasma coating. Roth teaches that the contours of the electrode used opposed to the workpiece or the "mold-image" of the workpiece, which could be considered to imply that the workpiece is used to mold the electrode, and employing such as taught to be useful in effect retreating three-dimensional & complicated workpieces (abstract; figures 4, 5; col. 5, lines 46-54; col. 6, lines 5-38, especially 5-16; col. 7, lines 15-col. 8, lines 11). While Roth's particular process is only directed to cleaning, it would have been obvious to one of ordinary skill of the art to employ like plasma electrode configurations in coating processes, as it is known & desirable to use atmospheric plasma for coating, as shown by Yializis et al. (abstract; col. 3, lines 25-51, especially 31-33 & 45-48; col. 13, lines 38- 53,

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especially 41-45), who were also interested in atmospheric glow discharge plasma surface treatment of substrate, but also desire & teach the usefulness of such processes for plasma CVD & plasma polarization techniques on substrates inclusive of metal, thus conducted, thus providing motivation to one of ordinary skill to employ atmospheric glow discharge plasmas for coating processes as well as for surface treatment, especially noting the secondary references teaching that it is desirable to use three-dimensional substrates also.

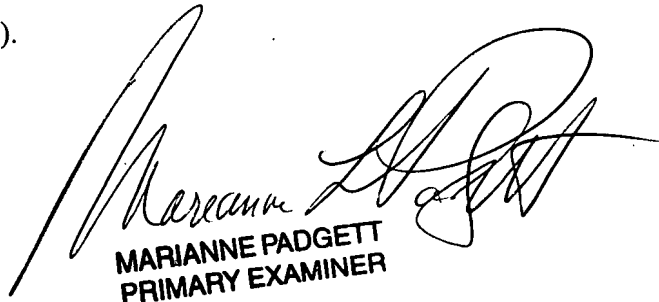
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MARIANNE PADGETT  
PRIMARY EXAMINER